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April 13, 1999

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Ms. Magalie Roman Salas
Office of the Secretary
Federal Communications Commission
The Portals
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: SBC Communications Inc. and Ameritech Corporation
(CC Docket No. 98-141)

Dear Ms. Salas:

SBC Communications Inc. and Ameritech Corporation wish to provide the Commission and its Staff with further evidence why the "negative spillover" theory proffered by Sprint in opposition to the above-captioned merger application should be rejected. That theory not only is unprecedented but is utterly unproven and speculative; Sprint's own economist characterized it as **"informed conjecture."** It is based on faulty assumptions, it is not supported by any empirical data, and it is flatly inconsistent with the behavior of numerous new CLEC entrants.

The attached econometric study by Professor Dennis Carlton of the University of Chicago and his colleague Dr. Hal Sider (Attachment 1) demonstrates conclusively that this "theory" is nothing but rank speculation and cannot serve as the legal foundation for conditioning the approval of our merger. In contrast to Sprint's so-called "empirical analysis" – which in reality is nothing more than unrepresentative anecdotes and excuses – Drs. Carlton and Sider have performed a systematic econometric analysis to test the accuracy of the Katz/Salop predictions. Their study asks and answers the following questions:

> *Did overall CLEC activity decline after the SBC/PacTel and Bell Atlantic/NYNEX mergers?* **NO.**
>
> *Is CLEC activity lower today in post-merger territories than elsewhere?* **NO.**

Did CLEC activity decline post-merger in the merged companies' territories? **NO.**

Is CLEC activity higher in territories served by small ILECs? **NO.**

These indisputable empirical results lead to an equally indisputable conclusion: There is no basis for finding that the SBC/Ameritech merger will harm competition.

For your convenience, we will summarize here the key points that are in this record:

1. Sprint's economists predict that the merger will increase discrimination and therefore harm competition. Their theory, in essence, is that SBC in its eight states does not have the full incentive to discriminate against CLECs today because its "footprint" is not big enough to capture all of the benefits, leaving some benefits to "spill over" to other RBOCs. But the bigger "footprint" created by the merger with Ameritech, they assert, will not only increase those incentives but actually will cause SBC to "intensify" discrimination and exclude CLECs. The Sprint economists never explain how or why their current discrimination theory should fare any better than the earlier version of the same argument that the FCC and various state commissions have emphatically rejected in the past. There are good reasons for this striking history.

2. Sprint's theoretical construct is based on numerous unsupportable assumptions, including the following:

a. It assumes that SBC could "delay, deny or degrade" service to CLECs in a way that would be noticeable to and affect the behavior of customers but would not be detected by the CLECs or the regulators.

b. It assumes that some of the most sophisticated telecommunications companies in the world – AT&T, MCI and Sprint – will not be able to detect or report such obvious conduct. (Sprint itself is the second largest non-RBOC local exchange company, and has its own substantial ILEC experience as a reference point.)

c. It assumes, contrary to every FCC merger decision addressing the point to date, that existing regulations will not be sufficient to prevent such illegal conduct.

d. It ignores both the additional information that CLECs and regulators will have from the monthly performance metric reports SBC

now submits to the FCC and the additional private remedies available under contract standards and antitrust laws.

e. It also ignores Section 271, which Congress determined creates an extra incentive for ILECs to open their markets, and which allows the FCC to **rescind** that authority if there is backsliding.

f. Indeed, it assumes that SBC would consciously attempt such illegal activity, when the record makes clear that the company did **not** do so in similar circumstances with cellular interconnection or intraLATA toll interconnection, and never has been found by any court or agency to have violated an interconnection obligation or to have degraded access service.

g. It assumes that the flood of CLEC entry around the country, and the billions of dollars already invested in CLEC startup costs, facilities and equipment, can be reversed.

3. Sprint's own economist admits that this "negative spillover" theory is novel and untested. Dr. John Woodbury, a colleague of Drs. Katz and Salop at Charles River Associates, sponsored the Sprint theory in the state regulatory proceedings, where he was subject to cross-examination. He acknowledged that this theory never has been used in the past to block a telecommunications (or any other) merger, and characterized it as "informed conjecture." Sprint thus asks the Commission to venture into uncharted legal and economic territory.

Moreover, the Justice Department thoroughly reviewed this theory under the Clayton Act "incipiency" standard – which requires **only** a "reasonable probability" of future harm to competition – and concluded that the evidence did not warrant a legal challenge to this transaction. The Illinois Commerce Commission Hearing Examiners, having presided over an adversarial proceeding in which Sprint made this argument, similarly concluded that "there is no credible evidence that the merger would increase Ameritech's incentive or ability to discriminate against CLECs," and that such arguments are "speculative." Proposed Order at 44. And all of the participants in the FCC's Economic Roundtable – including the economists opposing the merger – agreed that there is no direct or systematic evidence to either validate the theory generally or to justify applying the theory to this merger.

4. Sprint has failed to offer "empirical" support for this untested theory. The original Katz and Salop declaration contained no analysis of evidence or data, but only a few conclusory assertions about what "may" be true. The April 1 Katz paper, while billed as an "empirical analysis," similarly is devoid of data or

analysis, offering instead only a few anecdotes and unrepresentative comparisons of selected data points. Indeed, because they cannot cite any evidence that such "footprint" effects ever have occurred in any industry because of any merger, Sprint's economists must rely only on piecemeal arguments about the "logical components" of their theory. What is perhaps most remarkable is that Dr. Katz and his colleagues recognize that data on CLEC activity are available from the FCC, but they choose not to present anything approaching a comprehensive or systematic analysis of those data.

Rather, they devote much of their paper merely to restating their theoretical argument. Then, in addressing the supposed "historical evidence" regarding ILEC behavior, the April 1 Katz Paper effectively concedes that there is no evidence supporting a "big footprint" merger effect by making excuses for the fact that "negative spillover" was not observed. In particular, they offer no data or other evidence to support the theory that a **merger** will increase discrimination. [1]

Finally, the April 1 Katz Paper looks to the prior mergers of SBC/PacTel and Bell Atlantic/NYNEX for evidence of a "footprint" effect. The most striking thing about this section is that it begins with an apologia, listing reasons why there is no such evidence, all of which are addressed by the Carlton/Sider report. It is particularly noteworthy that Dr. Katz thinks it is too soon to see effects, when the two-plus years that have passed since the SBC/PacTel merger are actually a long time in the fast-moving telecommunications industry. Moreover, the industry and regulatory changes during that time have brought about irreversible market entry and performance data that guarantees that no effective discrimination can occur. Beyond these excuses, the April 1 Katz Paper again offers a few anecdotes that, as noted below, are false.

5. Proper analysis of the FCC's own CLEC data confirms that there is no basis for the "negative spillover" theory. The attached Carlton/Sider study analyzes the Commission's data regarding local exchange entry in a careful and

[1] They do cite a graduate student's **AT&T-funded** research paper that purports to study potential differences in the degree of cooperation shown by GTE and a variety of RBOCs in negotiating interconnection agreements with AT&T. The study does not control for differences in market characteristics, as the attached Carlton/Sider analysis does, and thus does not provide valid support for the proposition that there is an empirical difference in competitive entry because of differences in GTE and RBOC incentives. But even if there were evidence of such a difference, that observation would not support a conclusion that the merger will increase the parties' incentive or ability to discriminate. If anything, it shows the effectiveness of the regulatory and other constraints against discrimination by RBOCs.

systematic way to test whether the "negative spillover" theory has any empirical support. It takes the very question Sprint purports to address – whether prior RBOC mergers have resulted in discrimination – and the same FCC data Sprint relies upon to answer that question. Although it was prepared initially as a follow-on to the February 5 Economic Roundtable, and not to respond to the April 1 Katz Paper, the analysis performed by Carlton and Sider stands in stark contrast to Sprint's filings, in that it represents a rigorous rather than anecdotal presentation of the evidence.

The April 1 Katz Paper's carefully selected data comparisons purporting to suggest discrimination are belied by the comprehensive analysis of the same data presented in the Carlton/Sider Paper. Based on a series of analyses of the FCC's CLEC data, which account for national industry trends, differences among markets, and differences among LEC affiliation and size, Drs. Carlton and Sider demonstrate statistically that there has been **no** adverse effect on competitive entry due to past ILEC mergers. The data show unequivocally that CLEC activity in the merged companies' regions was not lower than in other companies' markets after the mergers – as Sprint's "negative spillover" theory predicts – and that CLEC activity is neither systematically nor statistically significantly higher in independent ILECs' markets than in comparable RBOC markets. These analyses, which Dr. Katz and his colleagues apparently avoided doing, are the very kind of **empirical** evidence that the Commission should rely on in rejecting the "big footprint" hypothesis.

6. The Carlton/Sider study also demonstrates an overriding marketplace reality. The "negative spillover" theory depends entirely on unstated assumptions: that the economies of scope faced by national or regional CLECs (*e.g.*, R&D, billing systems) have not yet been exhausted and that CLEC competition can be affected by future discrimination. But the undeniable fact is that hundreds of CLECs already have entered numerous local markets and invested billions of dollars in startup costs, facilities, and equipment, all of which means that those firms could **not** now be precluded by a "big footprint" from expanding into further markets. Indeed, irreversible changes that have already occurred in both the local markets and the regulatory framework preclude undetected discrimination by the merged entities.

7. The California experience in fact confirms that merged RBOCs have no enhanced incentive or ability to discriminate. Lacking any empirical support in the CLEC data for its theory, the April 1 Katz Paper, as noted, turns to anecdotes, citing a handful of complaints raised by competitors purportedly showing that Pacific Bell's performance "declined" after the merger. As explained in Attachment 2 to this letter, however, those anecdotes are either completely misleading or entirely false.

8. In fact, the merger between SBC and PacTel actually has resulted in numerous benefits and improvements for CLECs. Since the merger was consummated in April 1997, PacBell's support of local competition has increased markedly, as reflected in Attachment 3. This increase is reflected in: (a) a 45-fold increase in investment in CLEC electronic interfaces, (b) nearly a four-fold increase in staffing and a ten-fold increase in CLEC ordering capacity, (c) many procompetitive changes in PacBell policies to enhance support of local competition, and (d) greatly improved performance. The improved performance is confirmed by: (i) the steady growth in resold lines and UNE products in service, (ii) huge improvements in firm order confirmations and resale completion notifications, (iii) improving many "trouble" indicators from a position where resold lines were inferior to retail lines, to a point where today resale lines have full parity or better service, and (iv) transforming PacBell's record of provisioning collocation cages to consistent on-time performance.

9. The new performance measurement, reporting and enforcement regime in SBC's states enables CLECs and regulators to detect discrimination. Attachment 4 to this letter describes the extensive new regime of performance measurements, and the related reporting obligations and enforcement systems, that have recently been developed by SBC's ILECs, in conjunction with the DOJ, state public utility commissions and CLECs, as part of the market-opening proceedings under Section 271. As discussed in that paper, the existence of this new regime addresses and directly contradicts two of the fundamental assumptions underlying the "negative spillover" theory – (a) that SBC's ILECs are able to engage in effective, undetected discrimination against CLECs and (b) that regulators and CLECs do not have sufficient information to detect and deter such discrimination. The new performance measurement and reporting regime provides more focused, detailed, comprehensive and timely information than has ever been available to CLECs and regulators and, therefore, renders both of these critical assumptions unsupportable. This new regime is being implemented in all of SBC's current states, and it will be offered as a starting point in Ameritech's states (as SBC has already done in Ohio).

* * *

In sum, Sprint's last-ditch attempt to label selective comparisons and unsupported anecdotes as "empirical" evidence cannot salvage its unprecedented theory. No court would uphold agency action based on such a barren record. It now is even clearer that this theory rests on nothing but unfounded speculation, and thus offers no basis for further concern by the Commission regarding the impact of the SBC/Ameritech merger on burgeoning CLEC competition.

Sincerely,

Paul K. Mancini

PAUL K. MANCINI
General Attorney
and Assistant General Counsel
SBC Communications Inc.

Enclosures

cc: Robert C. Atkinson, Deputy Chief, Common Carrier Bureau
Thomas Krattenmaker, Office of Plans & Policy

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REPORT TO THE FCC ON SUPPLEMENTAL ANALYSIS OF THE KATZ/SALOP HYPOTHESIS

Dennis Carlton and Hal Sider

April 13, 1999

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REPORT TO THE FCC ON SUPPLEMENTAL ANALYSIS OF THE KATZ/SALOP HYPOTHESIS

Dennis Carlton and Hal Sider[1]

April 13, 1999

1. This memorandum provides further economic analysis of the theory, advanced principally by Profs. Michael Katz and Steven Salop on behalf of Sprint, that the SBC/Ameritech merger will lead to increased discrimination against competitive local exchange carriers (CLECs) seeking to enter the local exchange business. We show that the theory is based on unsupported, indeed incorrect, assumptions and that the anecdotal evidence recently presented by Prof. Katz and his colleagues John Hayes and Jith Jayaratne in fact does not support the proposition that the proposed merger will adversely affect CLEC activity.[2] We show that the data analyzed by Prof. Katz and his colleagues, when subjected to a systematic and rigorous econometric analysis, provide no support for the Katz/Salop hypothesis.

2. Section I of this memorandum reviews the series of assumptions that underlie the Katz/Salop hypothesis and show that these assumptions do not accurately characterize, and indeed ignore, current conditions in the marketplace for local exchange services.

3. Section II presents a comprehensive empirical analysis of Katz/Salop theory. We conduct a variety of econometric analyses to test predictions implied by the theory. Our analyses use available information on CLEC activity throughout the United States, apply well-accepted econometric techniques, and control for a variety of economic factors that influence the level of CLEC activity in an area.

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1. Dr. Carlton is Professor of Business Economics at the Graduate School of Business at the University of Chicago and President of Lexecon Inc. Dr. Sider is a Vice-President of Lexecon Inc.
2. John Hayes, Jith Jayaratne and Michael Katz, "An Empirical Analysis of the Footprint Effects of Mergers Between large ILECs" (April 1, 1999). The analysis presented in our paper was undertaken prior to Sprint's submission, but nonetheless addresses the principal questions raised in that paper.

4. The specific predictions of the Katz/Salop hypothesis that we test and our findings are as follows:

- The Katz/Salop hypothesis predicts that overall CLEC activity throughout the United States would decline following the SBC/PacTel and Bell Atlantic/NYNEX mergers in 1997. The data demonstrate that this prediction is wrong, as CLEC activity continues to increase rapidly.
- The Katz/Salop hypothesis predicts that CLEC activity today would be lower in the areas served by the merged ILECs than compared to otherwise comparable areas. The results of an econometric analysis of CLEC activity throughout the United States that controls for area characteristics refute this prediction.
- The Katz/Salop hypothesis predicts that past ILEC mergers would have a systematic, strong and statistically significant negative effect on CLEC activity. Our econometric analysis refutes this prediction as we find no such effect.
- The Katz/Salop hypothesis predicts that CLEC activity would be systematically higher in areas served by small ILECs relative to otherwise comparable areas. Again, econometric analysis of the data refute this prediction.

5. Instead of an econometric analysis of all available data, which yields results universally inconsistent with the predictions of the Katz/Salop hypothesis, Prof. Katz and his colleagues have used the same underlying data but have employed a selective anecdotal approach to address these questions. Given the availability of comprehensive data, such an anecdotal approach cannot provide a scientifically valid basis to reach conclusions about the validity of the Katz/Salop hypothesis.

6. We conclude based on our analysis of the Katz/Salop theory the "negative spillover" or "big footprint" hypothesis put forward by Prof. Katz and Salop provides no basis for finding that the SBC/Ameritech merger will harm competition.

I. THE KATZ/SALOP THEORY LACKS A COMPELLING THEORETICAL AND EMPIRICAL BASIS.

A. THE KATZ/SALOP THEORY IS BASED ON A SERIES OF UNSUPPORTED ASSUMPTIONS

7. In their affidavit submitted to the FCC with Sprint's opposition to the SBC/Ameritech transaction, Profs. Katz and Salop discuss at great length their view that ILECs *already* have an incentive to discriminate against CLECs. However, it is only their brief discussion of the incremental effect of the merger on these incentives that is relevant to the pending review and that provides the basis for their theory that efforts to block entry by national (or at least multi-regional) CLECs will increase significantly as the result of adding the five Ameritech states to the eight currently served by SBC.[3]

8. Katz and Salop explain their theory as follows: First, an "exclusionary access policy by one ILEC directed toward multi-market CLECs can also benefit other ILECs. This will occur when harming the CLECs in one region weakens their ability or incentive to compete in another region . . . ." (Katz/Salop, ¶ 69). Such "cross-region effects" can arise, they contend, due to possible economies of scope in the provision of CLEC service, which make it more efficient for a CLEC to operate in multiple areas instead of a single area:

> Even if the multiple local markets are distinct, there may be common research, product development, supporting software development, and promotional costs for a CLEC entrant. In deciding whether to enter the business at all, a potential carrier will evaluate its overall expected profits for entry. ... Thus, an ILEC's actions that reduce the profitability of entry in one region can lower the likelihood of entry in all regions. (Katz/Salop, ¶ 70).

9. It is clear from these brief statements that Profs. Katz's and Salop's conclusion that the proposed merger will have a significant adverse effect on CLEC activity rests critically on the assumptions that:

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3. The paper by Hayes, Jayaratne and Katz recapitulates the analysis presented by Prof. Katz and Salop but does not present new theoretical arguments regarding the effect of mergers on ILEC's incentive or ability to discriminate.

- Discrimination by an ILEC creates significant external benefits to ILECs in other regions by discouraging CLECs from entering into all areas; and the proposed merger significantly increases an ILEC's incentive to discriminate by enabling it to capture a significant amount of these external benefits.
- An ILEC will act on its increased incentives to discriminate and engage in additional discrimination despite a variety of forms of oversight, including scrutiny of their behavior by regulators and CLECs.
- The increased discrimination resulting from the merger will discourage CLECs from undertaking investments in the multi-market "set up costs" (e.g., research, development, marketing etc.) that are the common to the provision of CLEC service in all areas and thus will discourage future CLECs entry.
- The resulting increase in discrimination is significant and will have a material adverse effect on competition.

10. Profs. Katz's and Salop's earlier declaration, and the recent submission by Prof. Katz and his colleagues discuss at great lengths their views that ILECs today have a strong incentive to discriminate against CLECs (in order to preserve their existing customer base) as well as the ability to do so. Despite these strong existing incentives, they argue that the proposed transaction will make these incentives even greater and lead to significantly more discriminatory conduct.

11. Profs. Katz and Salop and their colleagues, however, have undertaken no effort to quantify the extent to which discrimination incentives are affected by the proposed transaction. Specifically, they present no evidence regarding: (1) the magnitude of external benefits of discrimination relative to internal benefits; (2) the extent to which capture of external benefits as a result of the merger affects the overall incentive to discriminate; and (3) how this increased incentive will be reflected in additional discriminatory conduct; and (4) the extent to which this assumed increased in discriminatory conduct would lead to decreased CLEC activity.

Without quantification of any of these elements, there is no basis to conclude that the hypothesized increased incentive to discriminate is material in any way.

12. More specifically, Prof. Katz and Salop provide no basis to assume that the external benefits of discrimination they focus on are large relative to the "traditional" direct benefits resulting from excluding rivals. Moreover, the proposed merger enables SBC to capture only a small fraction of the presumed external benefits of discrimination. If external benefits are small relative to "internal" benefits, then incentives to discriminate are unlikely to be affected by a merger.

13. With respect to understanding how any increased incentive to discriminate is translated into increased discrimination, it is important to recognize that the Katz/Salop theory suggests only that the proposed merger increases an ILEC's incentive to discriminate. The theory does not imply that the merger will improve a firm's ability to discriminate. In other words, unless Profs. Katz and Salop can also show that a bigger "footprint" significantly increases the difficulty of CLECs and regulators to detect discrimination or significantly diminishes the risk of legal sanctions that that ILEC would face in the event that discrimination is detected, it does not follow that their theory implies that a merger will significantly increase an ILEC's ability to discriminate.

14. Certainly, the ability of regulators and CLECs to detect discrimination is much greater today than in the past given: (1) the large number of interconnection agreements that have been negotiated and implemented between CLECs and ILECs; (2) the establishment and availability of accepted standards for measuring ILEC performance in providing service to CLECs; and (3) the sophistication of large multi-region (and in some cases vertically-integrated) CLECs that are the purported target of the hypothesized increase in discrimination.[4]

4. For example, Sprint is a local exchange carrier as well as a provider of CLEC services. It can readily use its own experience in providing interconnection between its ION service with its own local exchange facilities as a benchmark for evaluating the performance of other ILECs in providing interconnection.

15. In addition, it is important not to ignore that the 1996 Act incorporates very strong incentives for ILECs not to discriminate against CLECs through the promise of entry into long distance. For SBC, the merger increases this incentive to avoid discrimination because long distance authority is an important component of its National/Local plan. Moreover, there is no reason to think that, as Prof. Katz and his colleagues suggest, that incentives to discriminate will return once SBC receives authority to provide long distance service. In addition to other legal remedies, the ability of the FCC to rescind long distance authority, or even the threat that it could, remains a devastatingly strong incentive for ILECs to avoid discriminatory behavior, especially for SBC with its National/Local plan.

B. PROF. KATZ AND HIS COLLEAGUES HAVE PRESENTED NO EMPIRICAL EVIDENCE THAT SUPPORTS THEIR THEORY.

16. The new "empirical analysis" presented by Prof. Katz and his colleagues fails to provide empirical support for the assumptions that underlie the Katz/Salop model and the claim that that the merger will adversely affect competition by increasing discrimination. The principal flaw in the empirical analysis by Prof. Katz and his colleagues is their failure to undertake a systematic analysis of all available data and their reliance instead on selected anecdotes. In large part, these anecdotes are drawn from the same data we have used for our statistical analysis, but we have examined all available information using well-recognized econometric techniques.

17. The shortcomings of an anecdotal approach are well recognized:

- Such an approach fails to identify whether the examples presented are statistically significant deviations from typical patterns or instead are within the "normal" range of variation.
- Such an approach fails adequately to control for measurable economic and demographic factors in determining whether the observed patterns provide support for a particular hypothesis.

- Perhaps most importantly, however, anecdotes can be used selectively. As a matter of economic methodology, it is inappropriate to highlight certain examples that appear to support a given hypothesis while ignoring others that fail to provide such support. That is, anecdotes do not allow for conclusions that an effect is systematic.

18. The "empirical analysis" presented by Hayes, Jayaratne and Katz suffers from each of these shortcomings. Although our findings make a point-by-point critique of the analysis presented by Prof. Katz and his colleagues unnecessary, it is important to note the following:

- Prof. Katz and his colleagues note on page 22 of their April 1 report that CLEC entry in California did not increase as fast as elsewhere after the SBC/PacTel merger, but fail to note that entry in Texas and SBC's other states grew more rapidly than elsewhere, a result that undermines the Katz/Salop hypothesis which suggests that CLEC activity would fall throughout the merged ILEC's territory.
- Prof. Katz and his colleagues fail to note that CLEC activity in areas served by Bell Atlantic and NYNEX did not slow relative to other areas following the merger of these firms, as the Katz/Salop hypothesis predicts.
- In comparing CLEC activity in areas served by large and small ILECs, Prof. Katz and his colleagues suggest that selected independent ILECs, including Frontier and Cincinnati Bell, have more CLEC activity than elsewhere, but fail to report that other small ILECs, including Sprint, have less CLEC activity than elsewhere.
- Prof. Katz and his colleagues fail to control for factors, such as LATA population or population growth, that affect observed CLEC activity.
- Prof. Katz and his colleagues fail to present any analysis indicating whether the observed patterns they report are statistically significant.
- Prof. Katz and his colleagues fail to present any tables that summarize their results and describe their calculations. This makes it impossible even to verify whether they have correctly performed the calculations that they report.

19. There is no rationale for relying on selected anecdotes instead of the results of a comprehensive and systematic analysis when, as here, the appropriate data are readily available. Similarly, there is no rationale for failing to report results in a manner in which they can be verified by other analysts.

C. THE HIGH LEVEL OF CLEC ACTIVITY TODAY IMPLIES THAT ASSUMPTIONS THAT UNDERLIE THE KATZ/SALOP MODEL ARE NOT VALID.

20. There is no dispute that there has been a dramatic increase in CLEC activity in recent years:

- In the first quarter of 1996 (prior to the Bell Atlantic/NYNEX and SBC/PacTel mergers), only 18% of LATAs had one or more local service competitor holding numbering codes. By the third quarter of 1998, approximately 84% of LATAs had one or more such competitors.[5]
- Over this same time period, the number of local service competitors (nationwide) holding numbering codes rose from 15 to 146, and the total number of CLECs in all LATAs (*i.e.*, when a CLEC is counted once for each LATA where it holds numbering codes) rose from 78 to 726.[6] The rapid growth in CLEC activity is illustrated by the increase over this period in the number of LATAs in which AT&T held codes, from 0 to 82, and the number of LATAs in which MCI held codes, from 12 to 32.[7]

21. The high level of CLEC activity today indicates that the assumptions that underlie the Katz/Salop hypothesis are not valid.

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5. FCC, Local Competition Report, Table 4.2.
6. FCC, Local Competition Report, Table 4.1.
7. For consistency in reporting the growth in CLEC activity, the FCC data do not aggregate firms that have merged, such as MCI and WorldCom.

22. First, the high level of CLEC activity provides indisputable marketplace evidence that discrimination is not the significant regulatory problem that Profs. Katz and Salop suggest. It is inconceivable that large-scale entry (and investment) by highly sophisticated companies such as AT&T, Sprint and MCI WorldCom, would be observed if discrimination was as significant and pervasive a problem as suggested by proponents of discrimination theories. SBC's commitment to the National/Local plan, which requires interconnection with other ILECs, is further evidence that discrimination concerns are not deterring entry. This marketplace evidence is inconsistent with Sprint's position that discrimination concerns are an overarching consideration in making investment decisions.

23. Second, the incremental incentive for ILEC's to discriminate discussed by Profs. Katz and Salop would have no relevance to the many CLECs' that have already have incurred the multi-market setup costs that they claim give rise to economies of scope. These costs are incurred by the time, or before, CLECs enter into the provision of service in any local area. The "bigger footprint" would not affect these CLEC's activities where investments have already been made. Moreover, in light of the large sunk costs, the merger would have little effect on the expansion of existing CLECs into additional local areas.

24. The existence of multiple CLECs that already have incurred these set up costs also reduces or eliminates any incremental incentive by ILECs to keep out new CLECs that might be claimed to result from the proposed merger. Entry to date by a significant number of existing CLECs has already changed the competitive conditions facing ILECs. Where CLEC competition already is strong, any attempt to discriminate against new entrants would not be effective in preventing local exchange competition because the numerous CLECs are already in place and would remain in place and preserve competition.

25. Moreover, as mentioned above, the existence of numerous CLECs already in place significantly reduces not only an ILEC's incentive to discriminate but also its ability to do so. Any incremental discrimination against existing CLECs would be likely to be detected by

those CLECs and regulators more readily than in the past. Since the earlier ILEC mergers, a large number of interconnection agreements have been negotiated and a variety of performance standards have been established.[8] Hence, any change in ILEC behavior is far more likely to be detected and punished through contract and regulatory remedies than in the past. The CLECs already in place become "benchmarks" for new CLECs and thus limit the ability of ILECs to discriminate without detection.

26. The Katz/Salop theory thus has no applicability to the marketplace today, whatever its potential merit might have been in connection with prior ILEC mergers, when fewer CLECs had invested in the set up costs that give rise to economies of scope; when fewer CLECs had significant sunk investments in facilities and services; and when monitoring of ILEC performance was less sophisticated.[9] As discussed below, however, the evidence shows that, contrary to the prediction of the Katz/Salop theory, even those earlier mergers that occurred during a time when the industry was at more risk of harm resulting from discrimination, did not lead to reduced amounts of CLEC entry in regions served by the merged firms.[10]

8. SWBT, Pacific Bell and Nevada Bell ("SBC's ILECs") have recently negotiated an elaborate set of performance measurements and accompanying performance standards with the relevant state PUCs and CLECs which measure the quality of performance that SBC's ILECs provide to CLECs for Operations Support Systems, interconnection and operator services. Performance reports are posted monthly on SBC's website and are available to each CLEC and to federal and state regulators providing such interested parties the ability to assess the quality of performance provided by SBC's ILECs.
9. Hayes, Jayaratne and Katz suggest (p. 22-23) that the proposed ILEC mergers will have a greater adverse affect than the past mergers. Their discussion ignores the fact that may CLECs have already deployed facilities and services. As we demonstrate below, no such effect occurred following prior mergers.
10. For the same reasons we reject the contention made by Prof. Katz and his colleagues that two years is too little time to identify whether past ILEC mergers have affected CLEC activity. Given the high level of CLEC activity since the last ILEC mergers, if no adverse effect from past ILEC mergers is observed given the high level of CLEC activity over this period, it is unlikely that one will be identified in the future.

II. SYSTEMATIC ANALYSIS OF EMPIRICAL EVIDENCE FAILS TO SUPPORT THE KATZ/SALOP HYPOTHESIS THAT ILEC MERGERS ADVERSELY AFFECT CLEC ACTIVITY.

27. For the reasons set forth above, the anecdotal evidence put forward to support the Katz/Salop theory should be rejected because it is not based on a systematic analysis of the available data. In this section, we go further and explain that a comprehensive analysis of the available data demonstrates conclusively that the Katz/Salop theory has no merit. Thus, if the Katz/Salop theory was ever to have any application, it would have been either before enactment of the Telecommunications Act of 1996 or shortly thereafter. Of course, two major ILEC mergers were completed in 1997 (SBC/PacTel and Bell Atlantic/NYNEX), and these mergers provide a basis to test empirically the predictions of the Katz/Salop theory. Profs. Katz and Salop, however, do not provide any empirical analysis of the impact of prior ILEC mergers.

28. Although Profs. Katz and Salop present no systematic evidence to support their conclusion that the proposed merger will adversely affect CLEC activity, their theory can be tested empirically. For example, their theory predicts that: (i) past ILEC mergers would have a strong and statistically significant adverse effect on CLEC activity both nationwide and, especially, in the merged ILECs' territories; and (ii) large ILECs, including RBOCs, would have a greater incentive to discriminate than small ILECs and, as a result, there would be significantly more CLEC activity in the smaller ILECs' territories than in otherwise comparable areas served by RBOCs. If the data fail to support these hypotheses, as is demonstrated below, the Katz/Salop theory must be rejected.

29. This section analyzes the Katz/Salop theory using available data on CLEC activity. We have performed several related empirical analyses in an attempt to test various aspects of the Katz/Salop theory.

- We first look at CLEC activity on a nationwide basis to see whether CLEC activity fell following past ILEC mergers.

- We analyze whether past ILEC mergers have resulted in a reduction in CLEC activity in areas served by the merged companies relative to the level expected absent the merger.
- We compare the current level of CLEC activity in LATAs served by small ILECs, such as SNET, Cincinnati Bell, and others with that in otherwise comparable LATAs served principally by RBOCs. The analysis addresses Prof. Katz's statement at the FCC Roundtable on February 5, 1999 that independent ILECs have less incentive to discriminate than RBOCs, which due to their size can capture more of the external effects of discrimination.[11]
- We compare the current level of CLEC activity in LATAs served by multiple ILECs to that in LATAs served primarily by a single ILEC. The Katz/Salop theory implies that ILECs in LATAs "shared" by multiple ILECs have a weaker incentive to discriminate because such actions can result in significant benefits to neighboring ILECs. In contrast, ILECs that provide virtually all the service in a LATA would be able to capture this purported externality and would have a greater incentive to discriminate.

30. With respect to each of these empirical analyses, the evidence fails to support the Katz/Salop theory. These results are robust and do not change materially when we alter various aspects of the econometric specification.[12]

11. The recent white paper by Prof. Katz and his colleagues presents anecdotal evidence that they claim supports this point. Instead, as shown below, this conclusion is a result of the fact that ILECs selected by Hayes, Jayaratne and Katz and are not representative of all independent ILECs.
12. For example, exclusion of the New York and Los Angeles LATAs, the most populous LATAs which are both in merged ILECs' territories does not materially affect our results or conclusions. Similarly, the exclusion of small CLECs that operate in 3 or fewer LATAs from our measure of CLEC activity does not materially affect our results or conclusions.

A. ANALYTICAL FRAMEWORK

31. Our test of the Katz/Salop theory focuses on CLEC activity as measured by the number of firms that have been assigned numbering codes in each LATA.[13] These data are reported by the FCC on a quarterly basis and are derived from the Local Exchange Routing Guide (LERG), a database used by ILECs to identify the location and owner of equipment used in the public switched network. While the FCC data do not measure the intensity of CLEC activity, they reflect the most comprehensive information available on CLEC activity over time on a detailed geographic basis. These data are relied upon by the FCC to track new entry of local service providers.[14] Hayes, Jayaratne and Katz also rely on these data to track CLEC activity in their recent analysis of "footprint effect."

32. The analysis also requires identification of the ILECs that operate in each LATA. This determination is based on information on the population by "wire center," the area served by each local switch operated by any ILEC.[15] Combined with data that relate wire centers to LATAs, we estimate the population served by each ILEC within each LATA.[16] We use this information to identify the ILEC with the greatest population coverage in the LATA.[17] A list

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13. The FCC Local Competition report (p. 41) explains that:

> [i]n order to receive one or more numbering codes in an area, local exchange carriers must be licensed or certified to operate in an area, if required by a state regulatory authority, and must demonstrate that all applicable regulatory authority required to provide service has been obtained. Assignment of a numbering code in a particular area does not indicate that the carrier assigned the code is providing service in the area. Reservation of codes is permitted to accommodate technical and planning constraints. However, if a reserved code is not activated within eighteen months, the codes will be released from reservation.

All facilities-based carriers will receive numbering codes; some pure resellers of local service receive codes and others do not.

14. FCC, Local Competition, p.41.
15. These data were obtained from MapInfo, Inc.
16. This mapping was derived from Local Exchange Routing Guide (LERG) tapes obtained from SBC.
17. We also use these data to calculate the concentration of ILEC activity within a LATA using the Hirschman-Herfindahl index (HHI), which is calculated as the sum of the squares of the shares for each ILEC within a LATA.

identifying the ILEC with the greatest population coverage in each LATA is present in Appendix 1.

33. Many of the analyses presented below use regression analysis to estimate differences in CLEC activity between, for example, SBC/PacTel LATAs and elsewhere. Regression analysis is a standard statistical tool used to estimate the separate relationship between a particular variable of interest (here, the number of CLECs per LATA) and each of a number of other factors. In our analysis, these factors include the population of the LATA, population growth in the LATA between 1990-98, and the area of the LATA. [18]

34. Differences in CLEC activity in LATAs served by SBC/PacTel, Bell Atlantic/NYNEX and other RBOCs are estimated in this model using categorical "dummy" variables identifying LATAs served principally by these firms. The regression approach yields estimates of differences in CLEC activity in, for example, SBC/PacTel compared to other areas that "hold constant" (or "control for") the other factors included in the regression. We refer to this estimated difference as the "SBC/PacTel effect," which reflects an "apples to apples" comparison of CLEC activity that controls for differences in the population and population growth in SBC/PacTel LATAs and elsewhere.[19]

35. The particular specification of the regression model we apply allows the size of the estimated "SBC/PacTel effect" and "Bell Atlantic/NYNEX effect" to vary with LATA population. Thus, the magnitude of the "SBC/PacTel effect" is not constrained to be the same in large and small LATAs. [20]

18. Quadratic and interaction terms for population and population growth are used to account for potential nonlinearities in the estimated relationship between these variables and CLEC activity. We also include variables identifying LATAs served predominantly by non-RBOCs.
19. An essential part of the Katz/Salop theory is that an ILEC merger will lead to reduced CLEC activity throughout the areas served by the post-merger firm. Therefore, the appropriate test of the "footprint" theory is to analyze CLEC entry in the combined SBC/PacTel area and the combined Bell Atlantic/NYNEX area.
20. Our statistical analysis also corrects for potential heteroskedasticity using White's method.

B. CLEC ACTIVITY NATIONWIDE HAS CONTINUED TO GROW RAPIDLY SINCE THE PAST ILEC MERGERS.

36. The Katz/Salop model implies that past RBOC mergers would have discouraged CLEC activity nationwide as increased discrimination incentives in the merged companies' territories would deter CLEC entry in all areas. The FCC approved the SBC/PacTel merger in January 1997 and Bell Atlantic/NYNEX merger in August 1997.[21] The merged companies have roughly doubled the number of access lines that each separate company had before the merger. As discussed above, if the Katz/Salop theory is correct, the entry-deterring effects of discrimination by ILECs would be expected to be greater in the aftermath of these past mergers than today, when many more CLECs have deployed facilities and undertaken significant sunk investments in multi-market set up costs, and discrimination would be observable.

37. Empirical analysis, however, fails to support the theory. The average number of CLECs holding numbering codes per LATA has grown dramatically in recent years. Figure 1a presents both the simple and population-weighted average number of CLECs per LATA nationwide on a quarterly basis since 1996. The population-weighted measure provides a more representative measure of the extent to which the average person has faced increased CLEC activity over time. Figure 1b presents similar data for LATAs served by SBC/PacTel.

38. Rather than the reduction in CLEC activity that the Katz/Salop theory predicts, the data show that CLEC activity has continued to increase both nationwide and in areas served by SBC/PacTel. Focussing on the population-weighted figures, in the year preceding the FCC's approval of the SBC/PacTel merger in January 1997, the average number of CLECs with numbering codes per LATA increased by 1.9 per LATA (to 3.2). The growth in this average was larger in the year following FCC approval, increasing by 3.2 per LATA (to 6.4). CLEC activity has continued to grow since that time -- the population-weighted number of CLECs per LATA

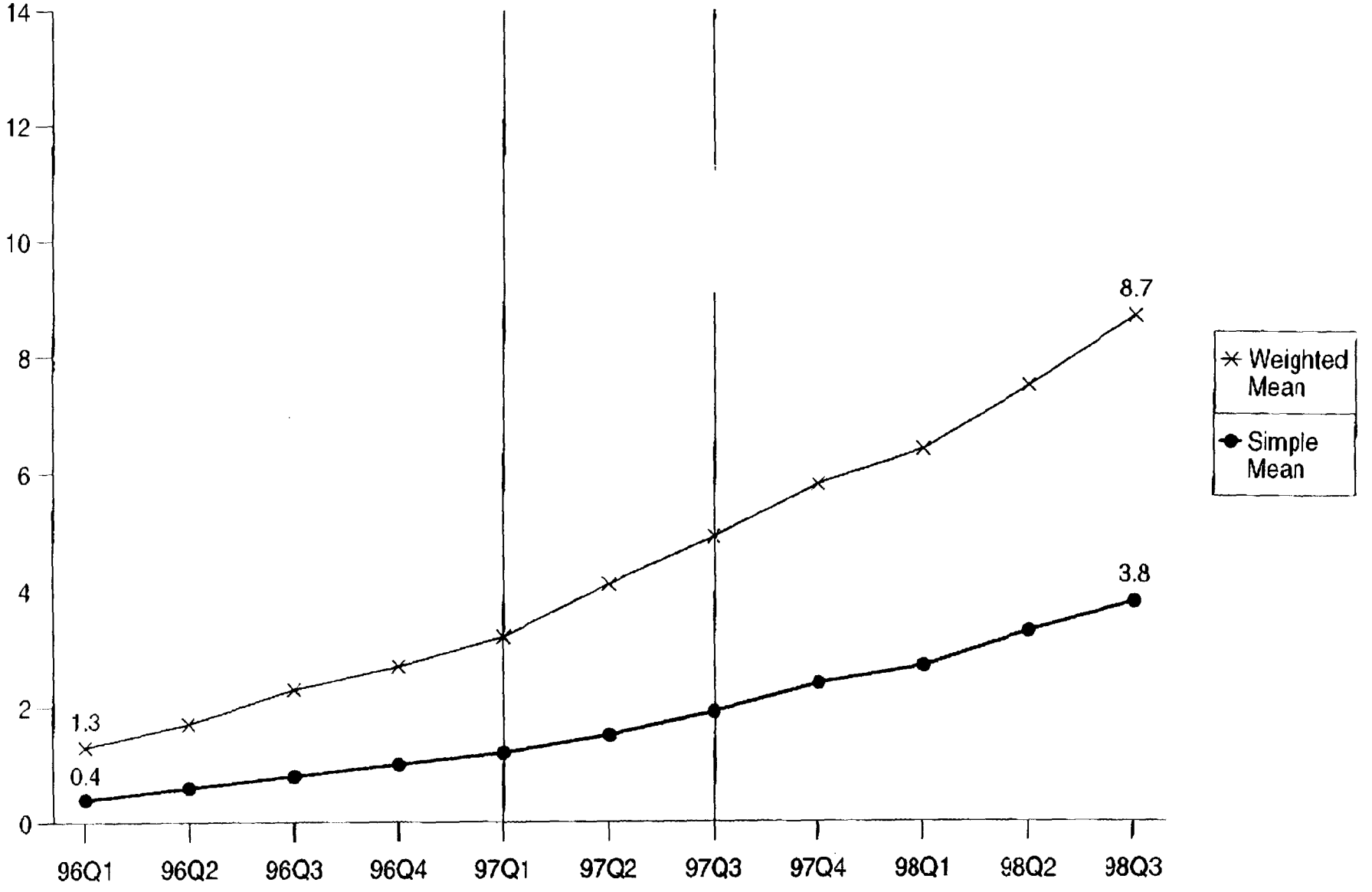
21. The SBC/PacTel merger was completed in April 1997 and the Bell Atlantic/NYNEX merger was completed immediately upon FCC approval in August 1997. There are no material difference in the results of any of our analyses if the closing date for SBC/PacTel is used instead of the FCC approval date for evaluating post-merger events.

Figure 1a

Average Number of CLECs Holding Numbering Codes in a LATA

Simple and Population Weighted Means

1996 Q1 - 1998 Q3



Note: Based on CLECs holding numbering codes. FCC approved the SBC/PACTEL merger 1/31/97 and the Bell Atlantic/NYNEX merger 8/14/97.

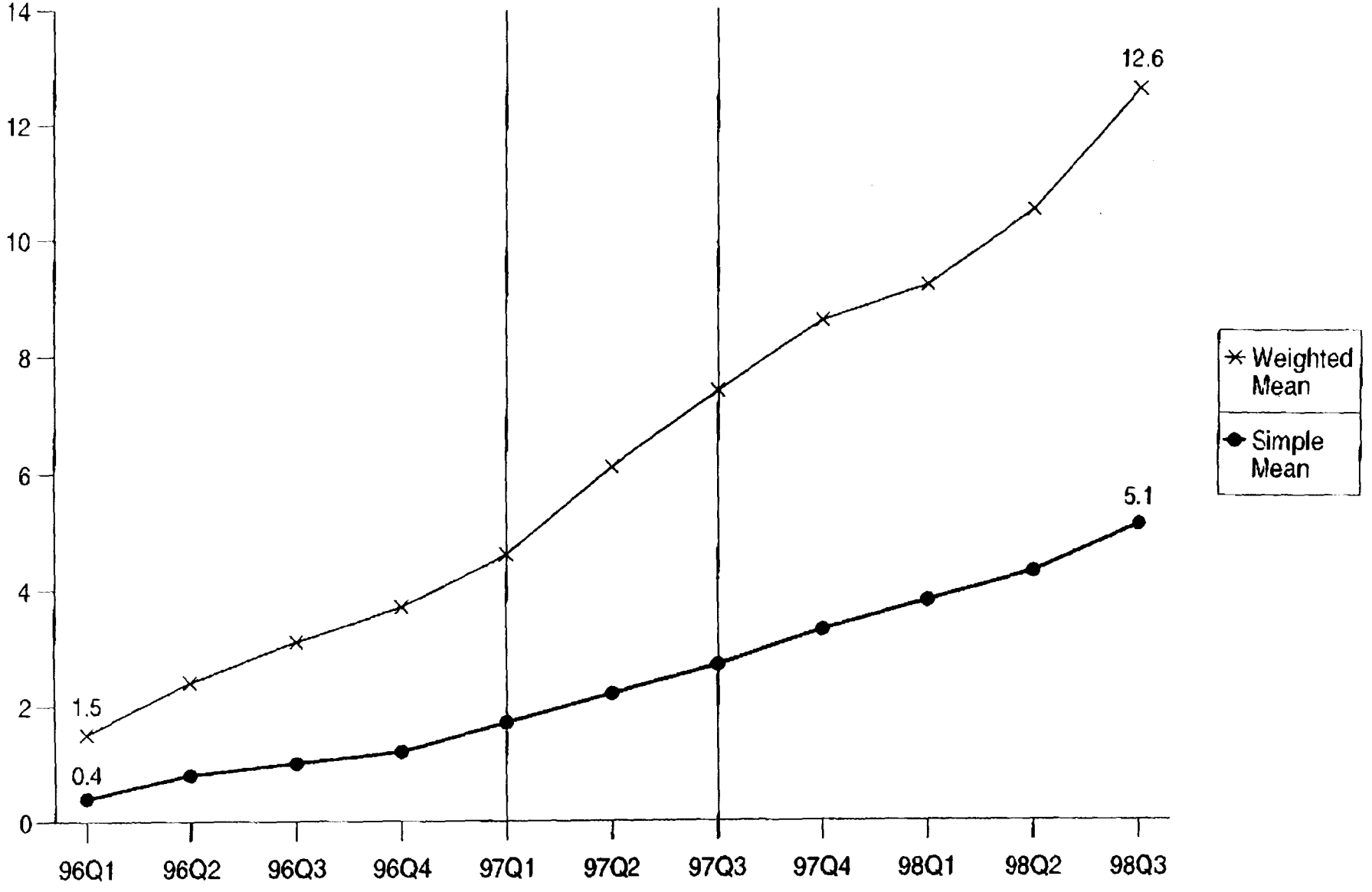
Source: FCC, "Local Competition", Table 4-13.

Figure 1b

Average Number of CLECs Holding Numbering Codes in SBC/PacTel LATAs

Simple and Population Weighted Means

1996 Q1 – 1998 Q3



Note: Based on CLECs holding numbering codes. FCC approved the SBC/PACTEL merger 1/31/97 and the Bell Atlantic/NYNEX merger 8/14/97.

Source: FCC, "Local Competition", Table 4-13.

nationally was 8.7 in the third quarter of 1998, the most recent data available. The comparable figure for SBC/PacTel was 12.6.

39. Thus, nationwide data provide no support for the notion that RBOC mergers harm CLEC activity. Instead, the data show that the number of CLECs holding numbering codes nationwide has continued to grow rapidly since the SBC/PacTel and Bell Atlantic/NYNEX mergers.

C. CLEC ACTIVITY IS NOT LOWER THAN OTHERWISE EXPECTED IN THE SBC/PACTEL AND BELL ATLANTIC/NYNEX REGIONS.

40. The Katz/Salop theory predicts that the SBC/PacTel and Bell Atlantic/NYNEX mergers would deter CLEC activity, especially in LATAs served by the merged firms. We test this hypothesis econometrically in two ways. First, we analyze whether, controlling for other factors, the current level of CLEC activity is lower in LATAs served by SBC/PacTel and Bell Atlantic/NYNEX than in other RBOC territories. Second, we analyze whether the level of CLEC activity in the merged companies' LATAs changed following these transactions, relative to that expected based on trends in otherwise comparable LATAs unaffected by these mergers.

41. The Katz/Salop theory predicts that these adverse effects on CLEC activity should be large, negative and statistically significant. The available evidence is to the contrary.

1. Current CLEC activity in the merged RBOCs' territories is not lower than expected.

42. As described in Section II.A above, we use standard regression techniques to analyze whether the current level of CLEC activity in the SBC/PacTel and Bell Atlantic/NYNEX LATAs is lower than in otherwise comparable LATAs served by other RBOCs. The regression results provide no support for the Katz/Salop hypothesis that the mergers had a systematic and significant negative affect on CLEC activity. There is no statistically significant difference in CLEC activity in the SBC/PacTel and Bell Atlantic/NYNEX territories in 1998Q3 (the most recent

quarter for which data are available) compared to LATAs with similar economic and demographic characteristics served by other ILECs. In fact, the data indicate there are more CLECs than would be expected in SBC/PacTel LATAs compared to LATAs served by other ILECs, controlling for differences in population size, population growth, and area, although this difference is not statistically significant. The regression results are summarized in Figure 2, which graphically demonstrates that the results of the regression analysis are fundamentally at odds with the Katz/Salop hypothesis.

43. Table 1 summarizes the magnitude of the difference between the estimated number of CLECs in SBC/PacTel and Bell Atlantic/NYNEX LATAs compared to otherwise comparable LATAs at various LATA population levels as well as the statistical significance of the these estimated differences. As the table indicates, SBC/PacTel LATAs have, as a simple average, roughly .61 more CLECs than otherwise comparable LATAs served by other ILECs. Calculated on a population-weighted average basis, the regression implies that SBC/PacTel LATAs have 2.72 more CLECs per LATA than elsewhere, not fewer CLECs per LATA, as suggested by the Katz/Salop theory. Bell Atlantic/NYNEX LATAs have .14 more CLECs than otherwise comparable LATAs calculated on a simple-average basis and 1.39 more when calculated on a weighted-average basis. As the tables indicate, the differences in CLEC activity in the merged ILECs' territories and elsewhere at various population levels are not statistically significant.

44. In addition to the reported results, we have estimated a variety of alternative model specifications that test the sensitivity of our results to changes in econometric specification. Appendix 2 reports results based on the same regression model when the New York and Los Angeles LATAs are excluded from the analysis. These LATAs are far larger than any others and both are in territories served by the merged ILECs. In theory, their inclusion could skew the results. Exclusion of these LATAs, however, does not affect our conclusion that the evidence fails to support the Katz/Salop theory. We have also analyzed a variety of

Figure 2

Estimated Number of CLECs by LATA Population

SBC/PacTel, BA/NYNEX and Other RBOC LATAs

1998Q3

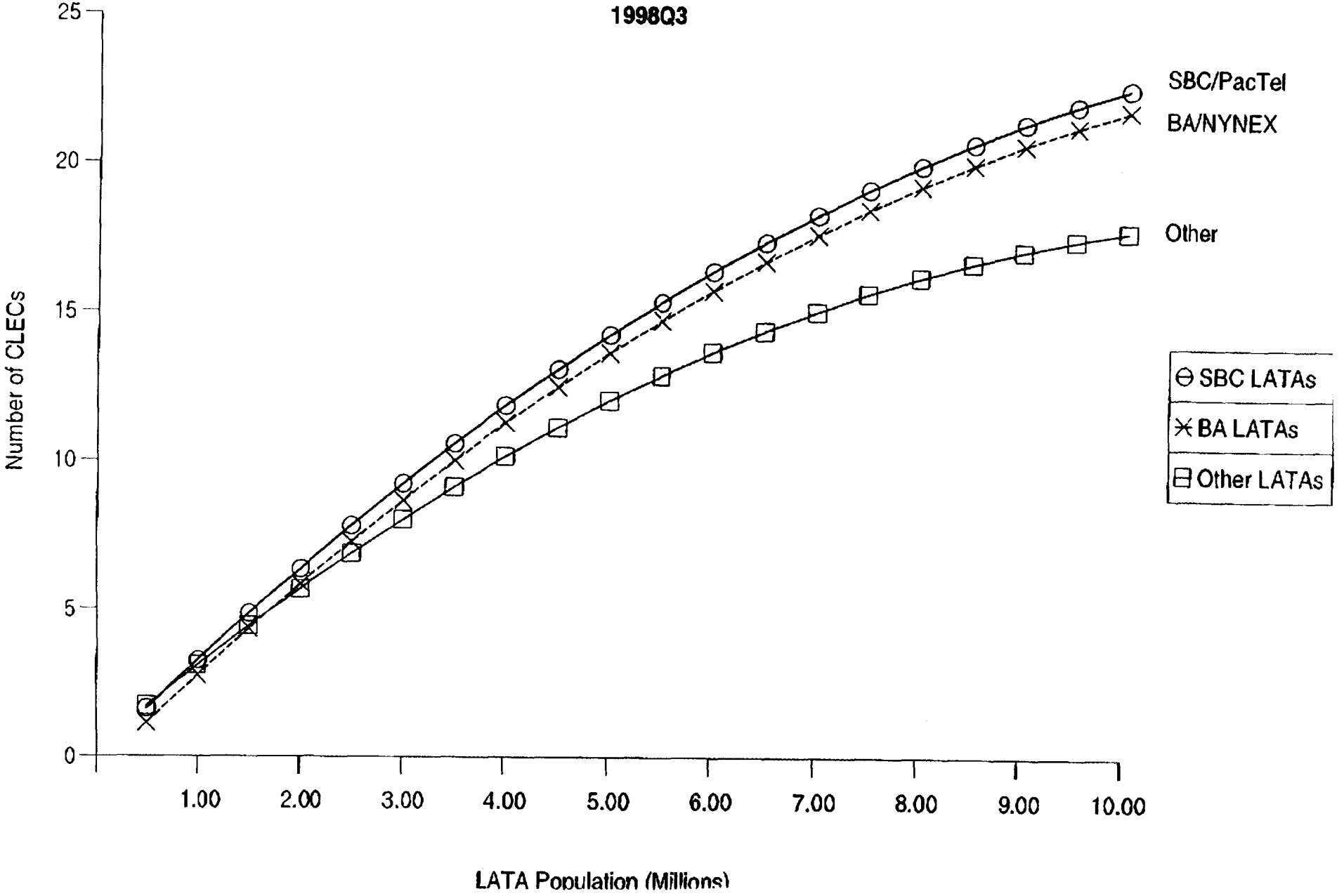


Table 1

Estimated Difference in CLEC Activity in LATAs Served by Merged ILECs and Other RBOCs

1998Q3

Population (Millions)	SBC/PacTel		Bell Atlantic/NYNEX	
	Difference[1/]	Probability[2/]	Difference[1/]	Probability[2/]
.5	-.08	.84	-.58	.22
1.0	.18	.65	-.33	.39
2.0	.69	.25	.15	.77
3.0	1.20	.20	.64	.47
5.0	2.22	.19	1.61	.35
LATA-Specific Differences				
Mean	.61	-	.14	-
Population-Weighted Mean	2.72	-	1.39	-
Combined Significance	-	.41	-	.42

1/ Difference between actual and expected number of CLECs predicted based on regression analysis.

2/ * indicates difference is statistically significant at 5 percent confidence level. The probability reflects the chance that the calculated difference would be observed by chance if the true difference was zero.

additional specifications, such as excluding small CLECs that hold numbering codes in fewer than four LATAs. Again, our conclusions remain unaffected. We also have repeated this analysis using data from 1998Q1 and 1998Q2. Results for these time periods similarly fail to provide support for the Katz/Salop hypothesis and indicate that CLEC activity in the merged companies' territories is generally higher than elsewhere, but that these differences are not statistically significant.[22]

2. CLEC activity in SBC/PacTel's and Bell Atlantic/NYNEX's areas has not diminished over time.

45. We next test whether CLEC activity in SBC/PacTel and Bell Atlantic/NYNEX LATAs which our analysis finds to be greater than in comparable areas in 1998Q3 (though not by a statistically significant amount), had nonetheless fallen since these firms' mergers relative to CLEC activity in otherwise comparable LATAs served by other ILECs. The Katz/Salop theory would predict a large and statistically significant decrease in CLEC activity in the merged companies territories.[23] Once again, however, the evidence contradicts the theory.

46. To perform this analysis, we use the cross-section regression framework described above applied separately using data from each calendar quarter between 1996Q1 and 1998Q3. This statistical approach explicitly accounts for changes over time in CLEC activity and the fact that these increases have been more pronounced in more populous LATAs.[24]

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22. When data from the three quarters in 1998 are included in estimation, the positive estimated SBC/PacTel effect is statistically significant in LATAs with population of more than 2 million. The Bell Atlantic/NYNEX effects remain statistically insignificant.
23. Hayes, Jayaratne and Katz appear to anticipate the conclusion that there is no systematic decline in the merged companies' LATAs in arguing that time series evidence is inherently limited. (p. 22) The period before and after these mergers, however, has been one of rapid and dramatic increases in CLEC activity. The effects of significant adverse incentives should be readily identifiable under such circumstances.
24. The estimated difference in CLEC activity in the merged ILECs' territories is estimated separately for each calendar quarter. We again account for the fact that the estimated "SBC/PacTel effect" and "Bell Atlantic/NYNEX" effect may differ in more and less populous LATAs. We test and accept (i.e., fail to reject) the hypothesis that the "SBC/PacTel" effect is the same in each pre-merger quarter and, as a result, impose this restriction in further

47. We then assess: (i) the increase in CLEC activity in LATAs served by SBC/PacTel and Bell Atlantic/NYNEX following their respective mergers; and (ii) the increase that would have been expected for LATAs with similar characteristics served by other RBOCs. As discussed above, if the Katz/Salop hypothesis has merit, the increase over time in CLEC activity in the merged companies' LATAs would be significantly lower than that observed in otherwise similar areas served by other RBOCs.[25]

SBC/PacTel

48. CLEC activity in the SBC/PacTel LATAs, if anything, grew more rapidly than in otherwise comparable LATAs, and taken as a whole, the differences are statistically significant. Thus, again, the results refute the Katz/Salop theory.

49. As Figure 3 indicates, the regression model reveals virtually no estimated difference in CLEC activity between SBC/PacTel LATAs and other ILEC LATAs in 1996Q3.[26] (See the lower two lines in Figure 3.) In 1998Q3, the estimated number of CLECs increased dramatically at all population levels relative to two years earlier but CLEC activity in SBC/PacTel LATAs rose even more than elsewhere over this period (i.e., SBC's 1998 line lies above the other 1998 line).

50. The relative increase in CLEC activity, calculated both as a simple average and a population-weighted average across LATAs, is reported in Table 2. The results indicate that the number of CLECs in LATAs served by SBC/PacTel increased by .52 more than in LATAs served

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(...continued)
estimation. Similarly, we test and accept the hypothesis that the "SBC/PacTel" effect is the same in each post-merger quarter and also impose this restriction in estimation. Similar tests are performed with respect to the "Bell Atlantic/NYNEX" effects. We impose similar restrictions in estimation after accepting the hypotheses that the Bell Atlantic/NYNEX effects are equal within the pre-merger period and within the post-merger period.

25. Because we allow the estimated "SBC/PacTel effect" and "Bell Atlantic/NYNEX effect" to vary for larger and smaller LATAs, we can perform this comparison separately for larger and smaller LATAs.

26. These estimates are calculated assuming that other LATA characteristics, such as population growth and area are held at the sample means.

APPENDIX 1

Appendix 1

LATAs Served by Major ILECs

LATA Number	LATA Name	State	Population	Largest ILEC
120	MAINE	MAINE	1,241,639	NYNEX
122	NEW HAMPSHIRE	NEW HAMPSHIRE	1,171,620	NYNEX
124	VERMONT	VERMONT	592,436	NYNEX
126	SPRINGFIELD	MASSACHUSETTS	789,953	NYNEX
128	BOSTON	MASSACHUSETTS	5,306,367	NYNEX
130	RHODE ISLAND	RHODE ISLAND	988,764	NYNEX
132	NEW YORK	NEW YORK	11,336,619	NYNEX
133	POUGHKEEPSIE	NEW YORK	830,314	NYNEX
134	ALBANY	NEW YORK	1,329,785	NYNEX
136	SYRACUSE	NEW YORK	1,624,116	NYNEX
138	BINGHAMTON	NEW YORK	660,211	NYNEX
140	BUFFALO	NEW YORK	1,555,722	NYNEX
220	ATLANTIC CITY	NEW JERSEY	423,936	BELL ATLANTIC
222	DELAWARE VALLEY	NEW JERSEY	1,761,855	BELL ATLANTIC
224	JERSEY CITY	NEW JERSEY	5,829,805	BELL ATLANTIC
226	HARRISBURG	PENNSYLVANIA	1,778,377	BELL ATLANTIC
228	PHILADELPHIA	PENNSYLVANIA	5,356,843	BELL ATLANTIC
230	ALTOONA	PENNSYLVANIA	921,820	BELL ATLANTIC
232	SCRANTON	PENNSYLVANIA	1,451,226	BELL ATLANTIC
234	PITTSBURGH	PENNSYLVANIA	2,786,293	BELL ATLANTIC
236	WASHINGTON DC	DIST. OF COLUMBIA	4,117,167	BELL ATLANTIC
238	BALTIMORE	MARYLAND	2,441,320	BELL ATLANTIC
240	HAGERSTOWN	MARYLAND	565,067	BELL ATLANTIC
242	SALISBURY	MARYLAND	294,597	BELL ATLANTIC
244	ROANOKE	VIRGINIA	863,529	BELL ATLANTIC
246	CULPEPER	VIRGINIA	508,387	BELL ATLANTIC
248	RICHMOND	VIRGINIA	1,221,460	BELL ATLANTIC
250	LYNCHBURG	VIRGINIA	380,561	BELL ATLANTIC
252	NORFOLK	VIRGINIA	1,539,951	BELL ATLANTIC
254	CHARLESTON	WEST VIRGINIA	977,682	BELL ATLANTIC
256	CLARKSBURG	WEST VIRGINIA	616,497	BELL ATLANTIC
320	CLEVELAND	OHIO	2,164,723	AMERITECH
322	YOUNGSTOWN	OHIO	598,280	AMERITECH
324	COLUMBUS	OHIO	2,490,024	AMERITECH
325	AKRON	OHIO	1,261,649	AMERITECH
326	TOLEDO	OHIO	1,288,301	AMERITECH
328	DAYTON	OHIO	1,349,645	AMERITECH

Appendix 1

LATAs Served by Major ILECs

LATA Number	LATA Name	State	Population	Largest ILEC
330	EVANSVILLE	INDIANA	370,563	AMERITECH
332	SOUTH BEND	INDIANA	998,995	GTE
334	AUBURN-HUNTINGTON	INDIANA	559,387	GTE
336	INDIANAPOLIS	INDIANA	2,266,144	AMERITECH
338	BLOOMINGTON	INDIANA	614,690	AMERITECH
340	DETROIT	MICHIGAN	5,307,617	AMERITECH
342	UPPER PENINSULA	MICHIGAN	315,115	AMERITECH
344	SAGINAW	MICHIGAN	982,075	AMERITECH
346	LANSING	MICHIGAN	686,626	AMERITECH
348	GRAND RAPIDS	MICHIGAN	2,333,442	AMERITECH
350	GREEN BAY	WISCONSIN	1,230,377	AMERITECH
352	EAU CLAIRE	WISCONSIN	564,324	AMERITECH
354	MADISON	WISCONSIN	1,045,653	AMERITECH
356	MILWAUKEE	WISCONSIN	2,351,593	AMERITECH
358	CHICAGO	ILLINOIS	8,379,557	AMERITECH
360	ROCKFORD	ILLINOIS	366,444	AMERITECH
362	CAIRO	ILLINOIS	317,580	GTE
364	STERLING	ILLINOIS	221,901	GTE
366	FORREST	ILLINOIS	253,354	GTE
368	PEORIA	ILLINOIS	472,869	AMERITECH
370	CHAMPAIGN	ILLINOIS	290,119	AMERITECH
374	SPRINGFIELD	ILLINOIS	357,711	AMERITECH
376	QUINCY	ILLINOIS	160,350	GTE
420	ASHEVILLE	NORTH CAROLINA	546,017	GTE
422	CHARLOTTE	NORTH CAROLINA	2,147,574	BELLSOUTH
424	GREENSBORO	NORTH CAROLINA	1,458,795	BELLSOUTH
426	RALEIGH	NORTH CAROLINA	1,127,104	BELLSOUTH
428	WILMINGTON	NORTH CAROLINA	409,901	BELLSOUTH
430	GREENVILLE	SOUTH CAROLINA	1,183,949	BELLSOUTH
432	FLORENCE	SOUTH CAROLINA	582,279	BELLSOUTH
434	COLUMBIA	SOUTH CAROLINA	968,295	BELLSOUTH
436	CHARLESTON	SOUTH CAROLINA	595,911	BELLSOUTH
438	ATLANTA	GEORGIA	5,041,508	BELLSOUTH
440	SAVANNAH	GEORGIA	849,752	BELLSOUTH
442	AUGUSTA	GEORGIA	534,010	BELLSOUTH
444	ALBANY	GEORGIA	656,247	BELLSOUTH
446	MACON	GEORGIA	530,267	BELLSOUTH

Appendix 1

LATAs Served by Major ILECs

LATA Number	LATA Name	State	Population	Largest ILEC
448	PENSACOLA	FLORIDA	594,687	BELLSOUTH
450	PANAMA CITY	FLORIDA	307,772	BELLSOUTH
452	JACKSONVILLE	FLORIDA	1,245,877	BELLSOUTH
454	GAINESVILLE	FLORIDA	994,961	SPRINT/UNITED
456	DAYTONA BEACH	FLORIDA	370,554	BELLSOUTH
458	ORLANDO	FLORIDA	1,787,696	BELLSOUTH
460	MIAMI	FLORIDA	5,014,407	BELLSOUTH
462	LOUISVILLE	KENTUCKY	1,483,853	BELLSOUTH
464	OWENSBORO	KENTUCKY	788,806	BELLSOUTH
466	WINCHESTER	KENTUCKY	1,494,299	GTE
468	MEMPHIS	TENNESSEE	1,542,475	BELLSOUTH
470	NASHVILLE	TENNESSEE	1,982,011	BELLSOUTH
472	CHATTANOOGA	TENNESSEE	613,926	BELLSOUTH
474	KNOXVILLE	TENNESSEE	1,075,595	BELLSOUTH
476	BIRMINGHAM	ALABAMA	1,859,645	BELLSOUTH
477	HUNTSVILLE	ALABAMA	752,436	BELLSOUTH
478	MONTGOMERY	ALABAMA	928,917	BELLSOUTH
480	MOBILE	ALABAMA	647,793	BELLSOUTH
482	JACKSON	MISSISSIPPI	2,283,905	BELLSOUTH
484	BILOXI	MISSISSIPPI	346,283	BELLSOUTH
486	SHREVEPORT	LOUISIANA	1,127,795	BELLSOUTH
488	LAFAYETTE	LOUISIANA	866,132	BELLSOUTH
490	NEW ORLEANS	LOUISIANA	1,586,858	BELLSOUTH
492	BATON ROUGE	LOUISIANA	700,509	BELLSOUTH
520	ST LOUIS	MISSOURI	3,525,642	SBC
521	WESTPHALIA	MISSOURI	234,605	GTE
522	SPRINGFIELD	MISSOURI	837,365	SBC
524	KANSAS CITY	MISSOURI	2,268,661	SBC
526	FORT SMITH	ARKANSAS	475,546	SBC
528	LITTLE ROCK	ARKANSAS	1,708,558	SBC
530	PINE BLUFF	ARKANSAS	319,662	SBC
532	WICHITA	KANSAS	1,156,606	SBC
534	TOPEKA	KANSAS	736,912	SBC
536	OKLAHOMA CITY	OKLAHOMA	1,975,529	SBC
538	TULSA	OKLAHOMA	1,299,916	SBC
540	EL PASO	TEXAS	699,876	SBC
542	MIDLAND	TEXAS	389,643	SBC

Appendix 1

LATAs Served by Major ILECs

LATA Number	LATA Name	State	Population	Largest ILEC
544	LUBBOCK	TEXAS	402,907	SBC
546	AMARILLO	TEXAS	404,559	SBC
548	WITCHITA FALLS	TEXAS	233,476	SBC
550	ABILENE	TEXAS	208,959	SBC
552	DALLAS	TEXAS	5,253,056	SBC
554	LONGVIEW	TEXAS	731,384	SBC
556	WACO	TEXAS	595,112	SBC
558	AUSTIN	TEXAS	1,100,879	SBC
560	HOUSTON	TEXAS	4,798,740	SBC
562	BEAUMONT	TEXAS	467,753	SBC
564	CORPUS CHRISTI	TEXAS	728,901	SBC
566	SAN ANTONIO	TEXAS	2,089,852	SBC
568	BROWNSVILLE	TEXAS	915,637	SBC
570	HEARNE	TEXAS	201,411	GTE
620	ROCHESTER	MINNESOTA	730,897	US WEST
624	DULUTH	MINNESOTA	301,818	US WEST
626	ST CLOUD	MINNESOTA	404,369	US WEST
628	MINNEAPOLIS	MINNESOTA	2,826,456	US WEST
630	SIOUX CITY	IOWA	345,448	US WEST
632	DES MOINES	IOWA	1,136,602	US WEST
634	DAVENPORT	IOWA	713,886	US WEST
635	CEDAR RAPIDS	IOWA	668,964	US WEST
636	BRAINERD-FARGO	NORTH DAKOTA	757,981	US WEST
638	BISMARK	NORTH DAKOTA	313,362	US WEST
640	SOUTH DAKOTA	SOUTH DAKOTA	732,275	US WEST
644	OMAHA	NEBRASKA	1,046,591	US WEST
646	GRAND ISLAND	NEBRASKA	370,652	US WEST
648	GREAT FALLS	MONTANA	540,359	US WEST
650	BILLINGS	MONTANA	332,745	US WEST
652	BOISE	IDAHO	977,552	US WEST
654	WYOMING	WYOMING	469,862	US WEST
656	DENVER	COLORADO	3,048,692	US WEST
658	COLORADO SPRINGS	COLORADO	836,563	US WEST
660	UTAH	UTAH	2,041,079	US WEST
664	NEW MEXICO	NEW MEXICO	1,734,091	US WEST
666	PHOENIX	ARIZONA	3,408,833	US WEST
668	TUCSON	ARIZONA	1,007,785	US WEST

Appendix 1

LATAs Served by Major ILECs

LATA Number	LATA Name	State	Population	Largest ILEC
670	EUGENE	OREGON	1,013,732	US WEST
672	PORTLAND	OREGON	2,646,648	US WEST
674	SEATTLE	WASHINGTON	3,880,034	US WEST
676	SPOKANE	WASHINGTON	1,279,119	US WEST
720	RENO	NEVADA	543,606	PACIFIC TELESIS
721	LAS VEGAS	NEVADA	1,102,428	SPRINT/UNITED
722	SAN FRANCISCO	CALIFORNIA	6,825,387	PACIFIC TELESIS
724	CHICO	CALIFORNIA	559,223	PACIFIC TELESIS
726	SACRAMENTO	CALIFORNIA	1,899,173	PACIFIC TELESIS
728	FRESNO	CALIFORNIA	1,329,262	PACIFIC TELESIS
730	LOS ANGELES	CALIFORNIA	15,374,376	PACIFIC TELESIS
732	SAN DIEGO	CALIFORNIA	2,811,733	PACIFIC TELESIS
734	BAKERSFIELD	CALIFORNIA	575,700	PACIFIC TELESIS
736	MONTEREY	CALIFORNIA	371,432	PACIFIC TELESIS
738	STOCKTON	CALIFORNIA	1,321,450	PACIFIC TELESIS
740	SAN LUIS OBISPO	CALIFORNIA	618,320	GTE
920	CONNECTICUT	CONNECTICUT	3,228,275	SNET
922	CINCINNATI	OHIO	1,765,860	CINCINNATI BELL
923	LIMA-MANSFIELD	OHIO	677,418	SPRINT/UNITED
924	ERIE	PENNSYLVANIA	425,991	GTE
927	HARRISONBURG	VIRGINIA	102,869	GTE
928	CHARLOTTESVILLE	VIRGINIA	146,798	SPRINT/UNITED
929	EDINBURG	VIRGINIA	34,208	SHENANDOAH TEL CO
932	BLUE FIELD	WEST VIRGINIA	166,919	CITIZENS TELECOM
937	RICHMOND	INDIANA	182,916	GTE
938	TERRE HAUTE	INDIANA	179,621	GTE
939	FT MYERS	FLORIDA	893,045	SPRINT/UNITED
949	FAYETTEVILLE	NORTH CAROLINA	877,691	SPRINT/UNITED
951	ROCKY MOUNT	NORTH CAROLINA	1,028,182	SPRINT/UNITED
952	TAMPA	FLORIDA	2,953,568	GTE
953	TALAHASEE	FLORIDA	289,229	SPRINT/UNITED
956	BRISTOL-JOHNSON CY	TENNESSEE	609,445	UNITED INTER-MTN TEL
958	LINCOLN	NEBRASKA	475,786	ALIANT
960	COUER D-ALENE	IDAHO	261,458	GTE
961	SAN ANGELO	TEXAS	231,862	GTE
973	PALM SPRINGS	CALIFORNIA	342,853	GTE
974	ROCHESTER	NEW YORK	903,198	FRONTIER

Appendix 1

LATAs Served by Major ILECs

LATA Number	LATA Name	State	Population	Largest ILEC
976	MATTOON	ILLINOIS	223,025	ILL CONSOLIDATED TEL
977	MACOMB	ILLINOIS	139,388	GTE
978	OLNEY	ILLINOIS	139,601	GTE
980	NAVAJO TERRITORY	ARIZONA	97,642	NAVAJO COMM CO INC

APPENDIX 2

Appendix 2

Estimated Difference in CLEC Activity in LATAs Served by Merged ILECs and Others

1998Q3

Analysis Excludes LA and New York LATAs

Population (Millions)	SBC/PacTel		Bell Atlantic/NYNEX	
	Difference[1/]	Probability[2/]	Difference[1/]	Probability[2/]
.5	-.12	.78	-.39	.40
1.0	.12	.76	-.33	.40
2.0	.59	.32	-.21	.72
3.0	1.06	.26	-.08	.93
5.0	2.00	.25	.16	.93
LATA-Specific Differences				
Mean	.33	-	-.25	-
Population-Weighted Mean	1.09	-	-.08	-
Combined Significance	-	.51	-	.68

1/ Difference between actual and expected number of CLECs predicted based on regression analysis.

2/ * indicates difference is statistically significant at 5 percent confidence level. The probability reflects the chance that the calculated difference would be observed by chance if the true difference was zero.